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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,963	09/16/2003	Atsunori Kitazawa	Q77154	1129

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

LEE, SUSAN SHUK YIN

ART UNIT PAPER NUMBER

2852

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/662,963

Applicant(s)

KITAZAWA ET AL

Examiner

Susan S. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 is/are allowed.
- 6) ☒ Claim(s) 20-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/16/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bares (5,981,133) in view of Shimmura et al. (6,603,934) and Miyamoto et al. (5,981,133).

Bares discloses a photoconductive belt or image carrier 10; a liquid developer carrier 36, 38 for transporting liquid developer toward a development position facing the image carrier 10; (note column 1, lines 32-38; and column 4, lines 46-60); a density detection means 54 for detecting the density of the developed test patch (note column 6, lines 10-14); a controller 80 gets the output signal from the density detection means 54 and forms a ratio of the developed test patch signal/bare photoconductive surface signal and generates a signal proportional thereto. This then is processed so to control respective processing station 86. One of the processes is the toner concentration where the motor 52 is energized causing toner dispenser 40 to discharge toner particles into developer housing 42. Note column 7, lines 30-54.

Bares fails to show the toner is charged and a predetermine developing bias is applied to the developer carrier; and the image forming condition in which not less than 90 % of the toner in the liquid developer at the development position is adhered to the image carrier.

Shimmura discloses a liquid development unit 5 with a developing bias voltage applied to developing roller 51 (note column 7, lines 29-37; column 10, lines 1-13); and the toner particles in the liquid developer has a charge of predetermined magnitude and polarity (note column 10, lines 54-65).

Miyamoto et al. discloses using a liquid developer for electrophotography having a toner concentration is appropriate at one to 90 % by weight (note column 6, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bares with that of Shimmura so that the developer can better adhered to the image carrier and with that of Miyamoto et al. so that a development speed is permitted in practical use in which the toner does not easily have sediment and if there is sediment, the toner can easily re-dispersed as disclosed by Miyamoto et al. (note column 1, line 67 – column 2, line 3).

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bares (5,981,133) in view of Miyamoto et al. (5,981,133).

Bares discloses a photoconductive belt or image carrier 10; a liquid developer carrier 36, 38 for transporting liquid developer toward a development position facing the image carrier 10; (note column 1, lines 32-38; and column 4, lines 46-60); a density

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detection means 54 for detecting the density of the developed test patch (note column 6, lines 10-14); a controller 80 gets the output signal from the density detection means 54 and forms a ratio of the developed test patch signal/bare photoconductive surface signal and generates a signal proportional thereto. This then is processed so to control respective processing station 86. One of the processes is the toner concentration where the motor 52 is energized causing toner dispenser 40 to discharge toner particles into developer housing 42. Note column 7, lines 30-54.

Bares fails to show the patch image is formed under the image forming condition in which not less than 90 % of the toner in the liquid developer at the development position is adhered to the image carrier.

Miyamoto et al. discloses using a liquid developer for electrophotography having a toner concentration is appropriate at one to 90 % by weight (note column 6, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bares with that of Miyamoto et al. so that a development speed is permitted in practical use in which the toner does not easily have sediment and if there is sediment, the toner can easily re-dispersed as disclosed by Miyamoto et al. (note column 1, line 67 – column 2, line 3).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bares, as modified by Shimmura and Miyamoto et al., as applied to claims 20-23, and 25 above, and further in view of Oogi (5,974,276).

Bares, as modified by Shimmura and Miyamoto et al., differ from the instant invention by not disclosing informing means for giving a message when the toner density is determined to fall outside a predetermined range.

Oogi discloses a toner density adjustment is accomplished by increasing the toner density when the detected density value of a test pattern image is lower than a target value and decreasing the toner density when the detected density value of a test pattern image is higher than a target value. Toner replenishment in the developing device 4 is executed so to match the adjusted toner density. When an image density is not further adjusted after the above changes, then an indicator is displayed on the operation panel and a buzzer alarm is sounded. Note column 5, lines 11-29.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bares in view of Shimmura and Miyamoto et al. with that of Oogi so that a warning can be given to an operator in order to further maintain the operations of the image forming apparatus.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bares, as modified by Shimmura and Miyamoto et al., as applied to claims 20-23, and 25 above, and further in view of Suzuki (6,853,817).

Bares, as modified by Shimmura and Miyamoto et al., differ from the instant invention by not disclosing density detector detecting a density of a patch image transferred from the image carrier to a transfer medium.

Suzuki discloses a density detecting mechanism for detecting information corresponding to a weight ratio of toner and carrier and controlling a toner supply

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amount for developing device 4. A patch sensor 13 functions as a density detecting means and is positioned to detect a density of a developed image (patch) transferred to a non-image area on the transfer sheet 5f. Note column 6, lines 22-39.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bares in view of Shimmura and Miyamoto et al. with that of Suzuki so that more accurate developing with the correct toner amounts can be obtained.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bares, as modified by Shimmura and Miyamoto et al., as applied to claims 20-23, and 25 above, and further in view of Yoshida et al. (Japan, 8-289148).

Bares, as modified by Shimmura and Miyamoto et al., differ from the instant invention by not disclosing a storage means for storing image forming condition and forming the patch image under the image forming condition stored in the storage means.

Yoshida et al. discloses an image recording device with adjustments made during a maintenance mode and the values for different processes of the image recording device are stored as a density conversion table in a nonvolatile RAM of a control circuit 34. A toner patch is formed on a transfer material carrier 9 by using the information stored in the density conversion table. Note abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bares in view of Shimmura and

Miyamoto et al. with that of Yoshida et al. so that high quality images can be obtained as disclosed by Yoshida et al..

***Allowable Subject Matter***

Claims 1-19 are allowed over the prior art of record.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimura, Kubota et al., Butler, and Rathbun disclose art in controlling toner densities in the image forming apparatuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan S. Lee whose telephone number is 571-272-2137. The examiner can normally be reached on Mon. - Fri., 10:30-8:00, Second Monday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Art Grimley can be reached on 571-272-2136 or 571-272-2800 (Ext. 52). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Susan S. Lee  
Primary Examiner  
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